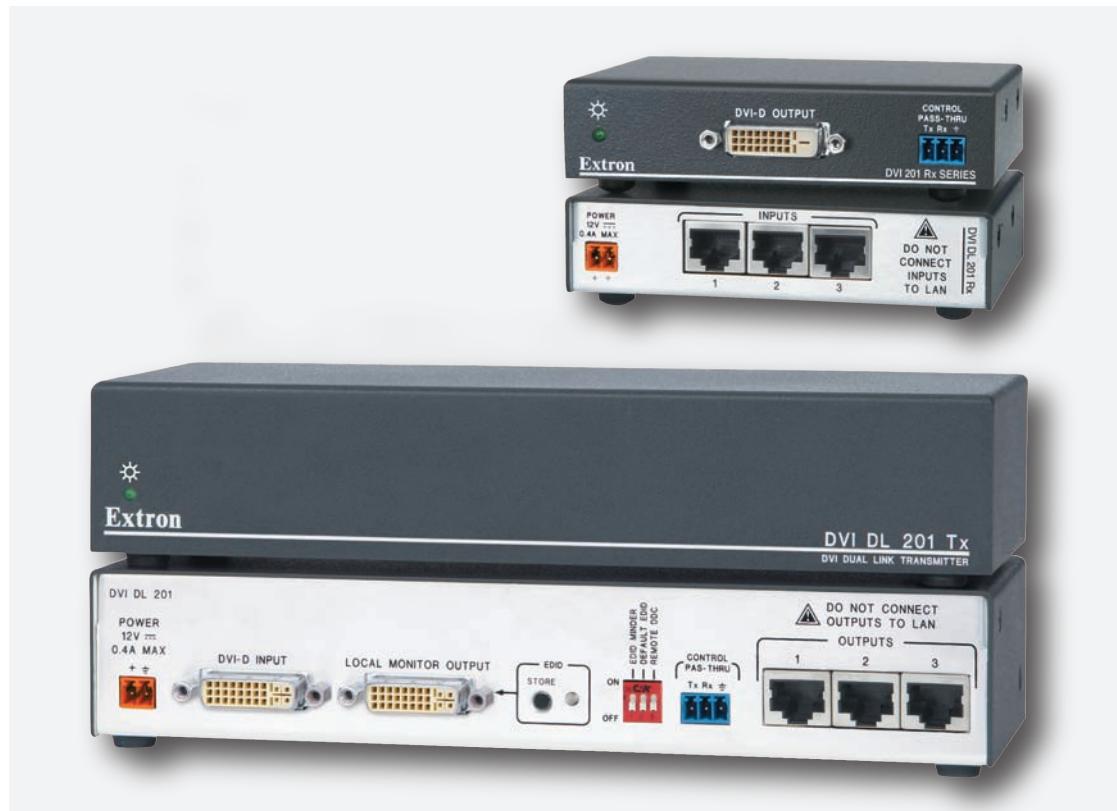


DVI DL 201 Tx/Rx

Dual Link DVI Transmitter and Receiver



Extron® Electronics
INTERFACING, SWITCHING AND CONTROL

Precautions

Safety Instructions • English



This symbol is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.



This symbol is intended to alert the user of the presence of uninsulated dangerous voltage within the product enclosure that may present a risk of electric shock.

Caution

Read Instructions • Read and understand all safety and operating instructions before using the equipment.

Retain Instructions • The safety instructions should be kept for future reference.

Follow Warnings • Follow all warnings and instructions marked on the equipment or in the user information.

Avoid Attachments • Do not use tools or attachments that are not recommended by the equipment manufacturer because they may be hazardous.

Consignes de Sécurité • Français



Ce symbole sert à avertir l'utilisateur que la documentation fournie avec le matériel contient des instructions importantes concernant l'exploitation et la maintenance (réparation).



Ce symbole sert à avertir l'utilisateur de la présence dans le boîtier de l'appareil de tensions dangereuses non isolées posant des risques d'électrocution.

Attention

Lire les instructions • Prendre connaissance de toutes les consignes de sécurité et d'exploitation avant d'utiliser le matériel.

Conserver les instructions • Ranger les consignes de sécurité afin de pouvoir les consulter à l'avenir.

Respecter les avertissements • Observer tous les avertissements et consignes marqués sur le matériel ou présentés dans la documentation utilisateur.

Eviter les pièces de fixation • Ne pas utiliser de pièces de fixation ni d'outils non recommandés par le fabricant du matériel car cela risquerait de poser certains dangers.

Sicherheitsanleitungen • Deutsch



Dieses Symbol soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.



Dieses Symbol soll den Benutzer darauf aufmerksam machen, daß im Inneren des Gehäuses dieses Produktes gefährliche Spannungen, die nicht isoliert sind und die einen elektrischen Schock verursachen können, herrschen.

Achtung

Lesen der Anleitungen • Bevor Sie das Gerät zum ersten Mal verwenden, sollten Sie alle Sicherheits- und Bedienungsanleitungen genau durchlesen und verstehen.

Aufbewahren der Anleitungen • Die Hinweise zur elektrischen Sicherheit des Produktes sollten Sie aufbewahren, damit Sie im Bedarfsfall darauf zurückgreifen können.

Befolgen der Warnhinweise • Befolgen Sie alle Warnhinweise und Anleitungen auf dem Gerät oder in der Benutzerdokumentation.

Keine Zusatzgeräte • Verwenden Sie keine Werkzeuge oder Zusatzgeräte, die nicht ausdrücklich vom Hersteller empfohlen wurden, da diese eine Gefahrenquelle darstellen können.

Instrucciones de seguridad • Español



Este símbolo se utiliza para advertir al usuario sobre instrucciones importantes de operación y mantenimiento (o cambio de partes) que se desean destacar en el contenido de la documentación suministrada con los equipos.



Este símbolo se utiliza para advertir al usuario sobre la presencia de elementos con voltaje peligroso sin protección aislante, que puedan encontrarse dentro de la caja o alojamiento del producto, y que puedan representar riesgo de electrocución.

Precaucion

Ler las instrucciones • Leer y analizar todas las instrucciones de operación y seguridad, antes de usar el equipo.

Conservar las instrucciones • Conservar las instrucciones de seguridad para futura consulta.

Obedecer las advertencias • Todas las advertencias e instrucciones marcadas en el equipo o en la documentación del usuario, deben ser obedecidas.

Evitar el uso de accesorios • No usar herramientas o accesorios que no sean específicamente recomendados por el fabricante, ya que podrían implicar riesgos.

安全须知 • 中文



这个符号提示用户该设备用户手册中有重要的操作和维护说明。



这个符号警告用户该设备机壳内有暴露的危险电压, 有触电危险。

注意

阅读说明书 • 用户使用该设备前必须阅读并理解所有安全和使用说明。

保存说明书 • 用户应保存安全说明书以备将来使用。

遵守警告 • 用户应遵守产品和用户指南上的所有安全和操作说明。

避免追加 • 不要使用该产品厂商没有推荐的工具或追加设备, 以避免危险。

Warning

Power sources • This equipment should be operated only from the power source indicated on the product. This equipment is intended to be used with a main power system with a grounded (neutral) conductor. The third (grounding) pin is a safety feature, do not attempt to bypass or disable it.

Power disconnection • To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).

Power cord protection • Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.

Servicing • Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards.

Slots and openings • If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.

Lithium battery • There is a danger of explosion if battery is incorrectly replaced. Replace it only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the instructions of the manufacturer.

Avertissement

Alimentations • Ne faire fonctionner ce matériel qu'avec la source d'alimentation indiquée sur l'appareil. Ce matériel doit être utilisé avec une alimentation principale comportant un fil de terre (neutre). Le troisième contact (de mise à la terre) constitue un dispositif de sécurité : n'essayez pas de la contourner ni de la désactiver.

Déconnexion de l'alimentation • Pour mettre le matériel hors tension sans danger, déconnectez tous les cordons d'alimentation de l'arrière de l'appareil ou du module d'alimentation de bureau (s'il est amovible) ou encore de la prise secteur.

Protection du cordon d'alimentation • Acheminer les cordons d'alimentation de manière à ce que personne ne risque de marcher dessus et à ce qu'ils ne soient pas écrasés ou pincés par des objets.

Réparation-maintenance • Faire exécuter toutes les interventions de réparation-maintenance par un technicien qualifié. Aucun des éléments internes ne peut être réparé par l'utilisateur. Afin d'éviter tout danger d'électrocution, l'utilisateur ne doit pas essayer de procéder lui-même à ces opérations car l'ouverture ou le retrait des couvercles risquent de l'exposer à des hautes tensions et autres dangers.

Fentes et orifices • Si le boîtier de l'appareil comporte des fentes ou des orifices, ceux-ci servent à empêcher les composants internes sensibles de surchauffer. Ces ouvertures ne doivent jamais être bloquées par des objets.

Lithium Batterie • Il a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

Vorsicht

Stromquellen • Dieses Gerät sollte nur über die auf dem Produkt angegebene Stromquelle betrieben werden. Dieses Gerät wurde für eine Verwendung mit einer Hauptstromleitung mit einem geerdeten (neutralen) Leiter konzipiert. Der dritte Kontakt ist für einen Erdanschluß, und stellt eine Sicherheitsfunktion dar. Diese sollte nicht umgangen oder außer Betrieb gesetzt werden.

Stromunterbrechung • Um das Gerät auf sichere Weise vom Netz zu trennen, sollten Sie alle Netzkabel aus der Rückseite des Gerätes, aus der externen Stromversorgung (falls dies möglich ist) oder aus der Wandsteckdose ziehen.

Schutz des Netzkabels • Netzkabel sollten stets so verlegt werden, daß sie nicht im Weg liegen und niemand darauf treten kann oder Objekte darauf- oder unmittelbar dagegen gestellt werden können.

Wartung • Alle Wartungsmaßnahmen sollten nur von qualifiziertem Servicepersonal durchgeführt werden. Die internen Komponenten des Gerätes sind wartungsfrei. Zur Vermeidung eines elektrischen Schocks versuchen Sie in keinem Fall, dieses Gerät selbst öffnen, da beim Entfernen der Abdeckungen die Gefahr eines elektrischen Schlags und/oder anderer Gefahren bestehen.

Schlitz und Öffnungen • Wenn das Gerät Schlitz oder Löcher im Gehäuse aufweist, dienen diese zur Vermeidung einer Überhitzung der empfindlichen Teile im Inneren. Diese Öffnungen dürfen niemals von anderen Objekten blockiert werden.

Lithium-Batterie • Explosionsgefahr, falls die Batterie nicht richtig ersetzt wird. Ersetzen Sie verbrauchte Batterien nur durch den gleichen oder einen vergleichbaren Batterietyp, der auch vom Hersteller empfohlen wird. Entsorgen Sie verbrauchte Batterien bitte gemäß den Herstelleranweisungen.

Advertencia

Alimentación eléctrica • Este equipo debe conectarse únicamente a la fuente/tipo de alimentación eléctrica indicada en el mismo. La alimentación eléctrica de este equipo debe provenir de un sistema de distribución general con conductor neutro a tierra. La tercera pata (puesta a tierra) es una medida de seguridad, no puentearía ni eliminaria.

Desconexión de alimentación eléctrica • Para desconectar con seguridad la acometida de alimentación eléctrica al equipo, desenchufar todos los cables de alimentación en el panel trasero del equipo, o desenchufar el módulo de alimentación (si fuera independiente), o desenchufar el cable del receptáculo de la pared.

Protección del cables de alimentación • Los cables de alimentación eléctrica se deben instalar en lugares donde no sean pisados ni apretados por objetos que se puedan apoyar sobre ellos.

Reparaciones/mantenimiento • Solicitar siempre los servicios técnicos de personal calificado. En el interior no hay partes a las que el usuario deba acceder. Para evitar riesgo de electrocución, no intentar personalmente la reparación/mantenimiento de este equipo, ya que al abrir o extraer las tapas puede quedar expuesto a voltajes peligrosos u otros riesgos.

Ranuras y aberturas • Si el equipo posee ranuras o orificios en su caja/alojamiento, es para evitar el sobrecalentamiento de componentes internos sensibles. Estas aberturas nunca se deben obstruir con otros objetos.

Batería de litio • Existe riesgo de explosión si esta batería se coloca en la posición incorrecta. Cambiar esta batería únicamente con el mismo tipo (o su equivalente) recomendado por el fabricante. Descharar las baterías usadas siguiendo las instrucciones del fabricante.

警告

电源 • 该设备只能使用产品上标明的电源。设备必须使用有地线的供电系统供电。第三条线（地线）是安全设施, 不能不用或跳过。

拔掉电源 • 为安全地从设备拔掉电源, 请拔掉所有设备后或桌面电源的电源线, 或任何接到市电系统的电源线。

电源线保护 • 妥善布线, 避免被踩踏, 或重物挤压。

维护 • 所有维修必须由认证的维修人员进行。设备内部没有用户可以更换的零件。为避免出现触电危险不要自己试图打开设备盖子维修该设备。

通风孔 • 有些设备机壳上有通风槽或孔, 它们是用来防止机内敏感元件过热。不要用任何东西挡住通风孔。

锂电池 • 不正确的更换电池会有爆炸的危险。必须使用与厂家推荐的相同或相近型号的电池。按照生产厂的建议处理废弃电池。

FCC Class A Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

The Class A limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the user guide, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

NOTE: This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to ensure compliance with FCC emissions limits.

For more information on safety guidelines, regulatory compliances, EMI/EMF compliance, accessibility, and related topics, [click here](#).

Notational Conventions Used in this Guide

TIP: A tip provides a suggestion to make setting up or working with the device easier.

NOTE: A note draws attention to important information.

CAUTION: A caution warns of things or actions that might damage the equipment.

WARNING: A warning warns of things or actions that might cause injury, death, or other severe consequences.

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Introduction

This user guide contains information about the Extron® DVI DL 201 Tx/Rx signal transmitter and receiver, with information on how to mount, install, and operate these units.

In this guide, unless otherwise specified, the terms "DVI DL 201" and "DVI DL 201 Tx/Rx" refer to both the transmitter (DVI DL 201 Tx) and the receiver (DVI DL 201 Rx). The term "transmitter" refers to the DVI DL 201 Tx, and "receiver" refers to the DVI DL 201 Rx.

About the DVI DL 201 Tx/Rx

The DVI DL 201 Tx and DVI DL 201 Rx are dual link DVI transmitter/receiver units. They can be purchased as a pair or as individual units.

Each purchased pair and each individual unit is shipped with a single external desktop 12 VDC power supply. A single power supply, connected to the transmitter, is able to power both devices.

Using three CAT 5/5e/6/7 twisted pair cables, DVI-D signals can be extended up to 100 feet (30 m) at resolutions up to 2560x1600 @ 60 Hz. This is significantly further than the 15 feet (5 m) specified for standard dual link DVI cables.

NOTES: The DVI DL 201 Tx/Rx works with unshielded twisted pair (UTP) cable or shielded twisted pair (STP) cable. However, STP cables are required to ensure FCC Class A and CE compliance.

Do not use skew-free cable. Extron strongly recommends DTP26 cable, especially when using high resolutions such as 1920x1200, 1600x1200, or 2560x1600. DTP26 cable is available as non-plenum (part number **22-214-03**) or plenum (part number **22-215-03**).

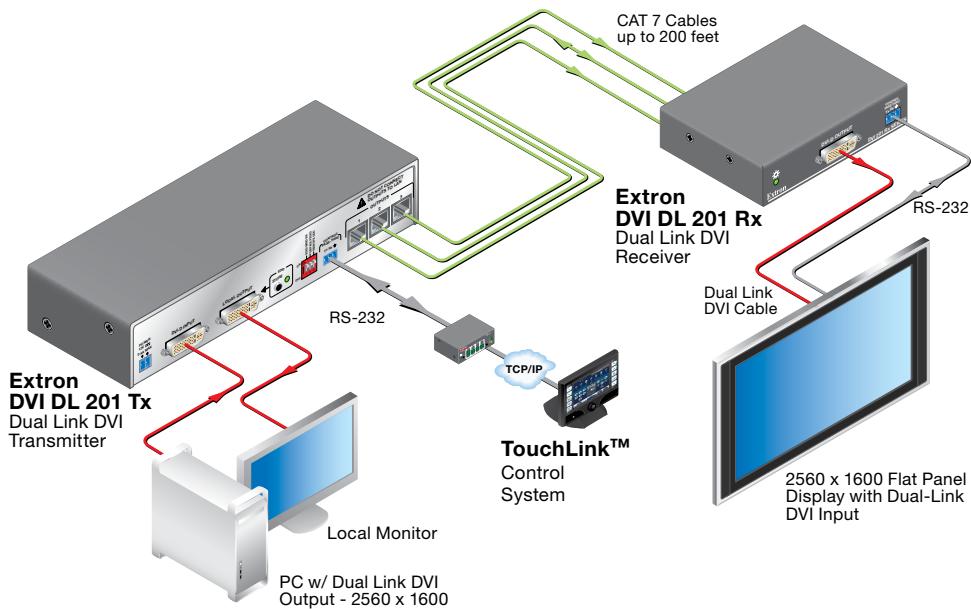


Figure 1. Typical Application for the DVI DL 201 Tx/Rx

Features

Transmits dual link DVI-D signals over three CAT 5/5e/6/7 cables — Standard twisted pair cables provide an economical, easily installed cable solution.

Long distance transmission — Signals are transmitted up to 100 feet (30 m), which is significantly further than the 15 feet (5 m) specified for standard dual link DVI cables.

Local monitor output — The transmitter has a DVI-D output for connection to a local monitor.

DDC routing to local or remote display — A two pole switch allows the user to determine whether Display Data Channel (DDC) signals are routed to the local or the remote display device.

EDID Minder™ — The EDID Minder maintains continuous EDID (Extended Display Identification Data) communication with the attached source. This ensures that the DVI source powers up correctly and maintains a proper video output, even if the display is off.

Control communications pass-through — The DVI DL 201 passes through RS-232 (two way) or IR (one way) control signals, to a remote display.

Compact design — The transmitter is 1U high, a half rack wide, and 3 inches deep for easy rack mounting near the source device.

The receiver is 1 inch high, a quarter rack wide and 3 inches deep, allowing multiple mounting options near the display device.

Remote powering of receiver — A single power supply, connected to the transmitter, is able to power both the transmitter and receiver.

Panels and Cabling

This section describes the panel features and cabling of the DVI DL 201 Tx and DVI DL 201 Rx:

- [DVI DL 201 Tx Front Panel](#)
- [DVI DL 201 Tx Rear Panel](#)
- [DVI DL 201 Rx Front Panel](#)
- [DVI DL 201 Rx Rear Panel](#)

DVI DL 201 Tx Front Panel

The illustration below shows the front panel features of the DVI DL 201 Tx.

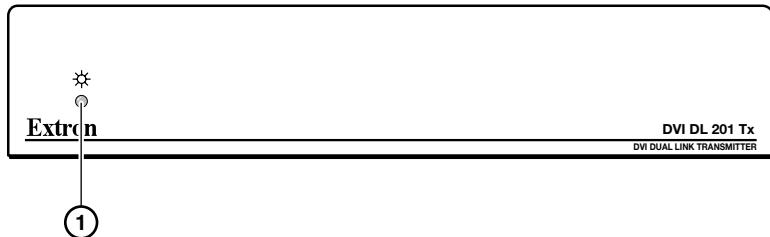


Figure 2. DVI DL 201 Tx Front Panel Features

① **LED** — An amber light indicates that the DVI DL 201 Tx is receiving power from a power supply. A green light indicates that the transmitter is also receiving a video signal.

DVI DL 201 Tx Rear Panel

The illustration below shows the rear panel features of the DVI DL 201 Tx.

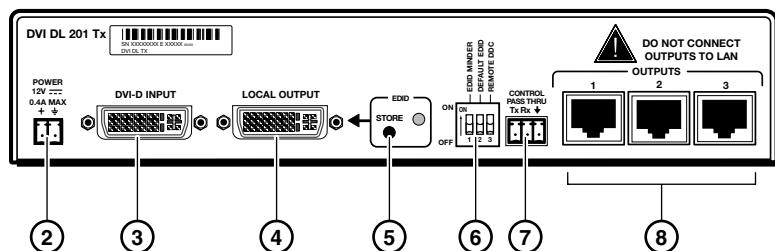


Figure 3. DVI DL 201 Tx Rear Panel Features

- ② **Power input** — The 12 VDC power supply (provided) connects to this two-pole, 3.5 mm captive screw connector.
- ③ **DVI-D input** — One female DVI-I connector accepts a dual-link DVI-D input from the source device.
- ④ **Local monitor output** — One female DVI-I connector provides a dual-link DVI-D output to the local monitor.
- ⑤ **EDID Minder Store switch and LED** — When depressed, the transmitter reads and stores the EDID information from the local monitor. The LED gives the status of this process.
- ⑥ **DDC route switches** — Three DIP switches allow the unit to be configured to use the EDID Minder or route the DDC directly to the display.
- ⑦ **Control signal pass-through** — A three-pole, 3.5 mm captive screw connector inputs pass-through RS-232 (two-way) or IR signals (one-way).
- ⑧ **Twisted pair outputs** — Three RJ-45 jacks are used for transmitting DVI video, remote power, and communications/control signals.

NOTES: The DVI DL 201 transmits high frequency signals via these TP outputs. Connections between the transmitter and receiver must be point to point. It is recommended that there should be no couplers, adapter, or patch panels between the transmitter and receiver units.

Do not use skew-free cable. Extron strongly recommends DTP26 cable, especially when using high resolutions such as 1920x1200, 1600x1200, or 2560x1600. DTP26 cable is available as non-plenum (part number **22-214-03**) or plenum (part number **22-215-03**).

DVI DL 201 Rx Front Panel

The illustration below shows the front panel features of the DVI DL 201 Rx.

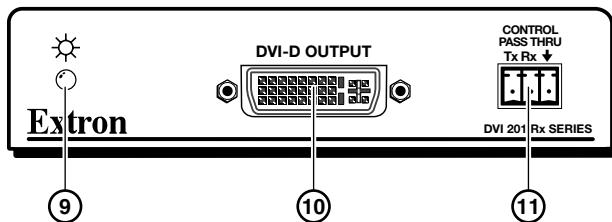


Figure 4. DVI DL 201 Rx Front Panel Features

- ⑨ **Power LED** — An amber light indicates that the DVI DL 201 Rx is receiving power from a power supply or remotely, through the transmitter. A green light indicates that the receiver is also receiving a video signal.
- ⑩ **DVI-D output** — One female DVI-I connector provides a dual-link DVI-D output.
- ⑪ **Control signal pass-through** — A three-pole, 3.5 mm captive screw connector inputs pass-through RS-232 (two-way) or IR signals (one-way).

DVI DL 201 Rx Rear Panel

The illustration below shows the rear panel features of the DVI DL 201 Rx.

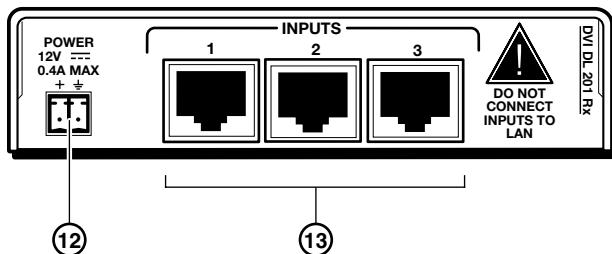


Figure 5. DVI DL 201 Rx Rear Panel Features

- ⑫ **Power input** — An optional 12 VDC power supply (not provided) connects to this two-pole, 3.5 mm captive screw connector.

NOTE: The receiver can be remotely powered by the transmitter.

- ⑬ **Twisted pair inputs** — Three RJ-45 jacks receive video, remote power, and pass-through communications/control signals from the transmitter. They can also send pass-through control signals via the transmitter.

NOTES: The DVI DL 201 transmits high frequency signals via these TP outputs. Connections between the transmitter and receiver must be point to point. It is recommended that there should be no couplers, adapter, or patch panels between the transmitter and receiver units.

Do not use skew-free cable. Extron strongly recommends DTP26 cable, especially when using high resolutions such as 1920x1200, 1600x1200, or 2560x1600. DTP26 cable is available as non-plenum (part number **22-214-03**) or plenum (part number **22-215-03**).

Cable Connections and Switches

DVI-D Input

Connect the DVI-D source device to the female DVI-I input connector.

The dual link DVI-D input carries a signal with a resolution up to 2560x1600 @ 60 Hz.

For sources providing HDMI signals, use an HDMI to DVI adapter, such as the Extron HDMIIF-DVIDM female HDMI to male DVI-D adapter (part number **26-616-01**). The pin assignments for the DVI-I input connectors are shown in the table below.

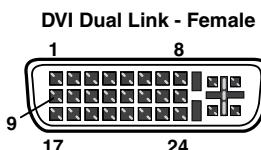
DVI-D Output

Connect the local display device to the female DVI-I output connector on the rear panel of the transmitter and the remote display device to the output connector on the front panel of the receiver.

The dual link DVI-D output carries a signal with a resolution up to 2560x1600 @ 60 Hz.

The pin assignments for the DVI-I output connectors are the same as those for the input connectors and are shown in the table below.

NOTE: Although DVI-I connectors are used, the DVI DL 201 is compatible only with DVI-D signals.



Pin	Signal	Pin	Signal	Pin	Signal
1	TMDS data 2-	9	TMDS data 1-	17	TMDS data 0-
2	TMDS data 2+	10	TMDS data 1+	18	TMDS data 0+
3	TMDS data 2/4 shield	11	TMDS data 1/3 shield	19	TMDS data 0/5 shield
4	TMDS data 4-	12	TMDS data 3-	20	TMDS data 5-
5	TMDS data 4+	13	TMDS data 3+	21	TMDS data 5+
6	DDC clock	14	+5 V power	22	TMDS clock shield
7	DDC data	15	Ground	23	TMDS clock+
8	CEC control*	16	Hot plug detect	24	TMDS clock-

*CEC control on pin 8 is a proprietary usage and is not the industry standard

Twisted Pair Output and Input

Terminating shielded cable

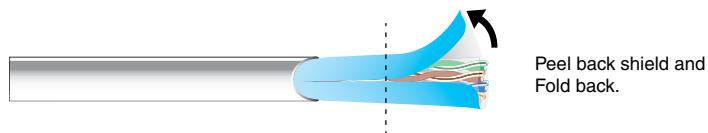
CAT 5/5e/6/7 twisted pair cable is not provided with the transmitter/receiver pair. You may purchase cables that have been precut to the required length and terminated to the T586A or T586B standard (see the table on the next page).

Alternatively, purchase bulk cable and use the RJ-45 connectors (provided) to prepare your own terminated cables as described below.

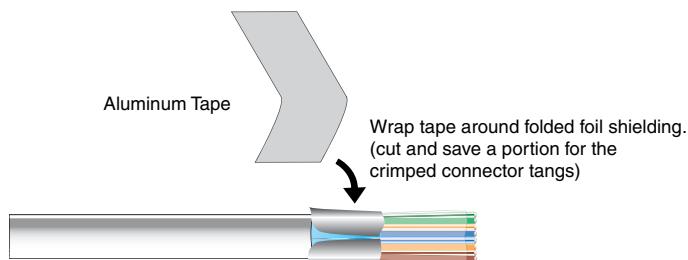
NOTE: The transmitter and receiver pair works with unshielded twisted pair (UTP) or shielded twisted pair (STP) cables. To ensure FCC Class A and CE compliance, and for optimum performance, STP cables are recommended.

Do not use skew-free cable. Extron strongly recommends DTP26 cable, especially when using high resolutions such as 1920x1200, 1600x1200, or 2560x1600. DTP26 cable is available as non-plenum (part number **22-214-03**) or plenum (part number **22-215-03**).

1. Cut the cables to the required length. All three cables should be the same length.
2. Remove about 7/8 inch (2.2 cm) of the outer coat. If using STP cable, peel back the shielding and fold it over the top of the outer coat.



3. Cut away and discard the clear cellophane inner wrapper that extends beyond the folded back shielding.
4. Cut a piece of self-adhesive shielded aluminum tape (provided), remove the backing, and wrap it around the folded back shielding.

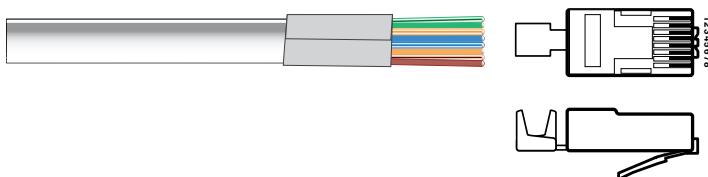


5. Separate the individual wires, and arrange them so that all eight wires are side by side in the same order as the T586A or T586B standard shown at the top of the next page. Both ends of a cable must be wired to the same standard (T586A or T586B).

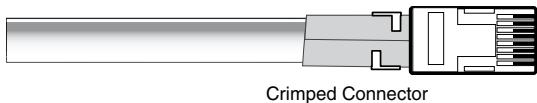
Pin #	TIA/EIA T 586 A Wire color	TIA/EIA T 586 B Wire color	Cable 1	Cable 2	Cable 3
1	White-green	White-orange	Data 0+	CEC	Data 3+
2	Green	Orange	Data 0+	HPD	Data 3+
3	White-orange	White-green	IDCK+	RS-232 Tx/IR+	N/C
4	Blue	Blue	Data 1+	DDC Clock	Data 4+
5	White-blue	White-blue	Data 1+	+12 V	Data 4+
6	Orange	Green	IDCK-	RS-232 Rx	N/C
7	White-brown	White-brown	Data 2+	DDC Data	Data 5+
8	Brown	Brown	Data 2+	Ground	Data 5+

6. Feed the wires into the RJ-45 connector.

Line up wires per chart,
then insert into RJ-45
connector.



7. Crimp the cable in the normal manner (see the figure below), folding the tangs of the connector over the shielded tape.



Connections

Use RJ-45 connectors to link the output from the transmitter to the appropriate input on the receiver. Three CAT 5/5e/6/7 twisted pair (TP) cables connect the transmitter with the receiver.

NOTE: The transmitter and receiver pair works with unshielded twisted pair (UTP) or shielded twisted pair (STP) cables. To ensure FCC Class A and CE compliance, and for optimum performance, STP cables are recommended.

Connect the output from the transmitter to the input of the receiver that has the same number:

- Transmitter port 1 connects to receiver port 1.
- Transmitter port 2 connects to receiver port 2.
- Transmitter port 3 connects to receiver port 3.

NOTE: Do not use skew-free cable. Extron strongly recommends DTP26 cable, especially when using high resolutions such as 1920x1200, 1600x1200, or 2560x1600. DTP26 cable is available as non-plenum (part number **22-214-03**) or plenum (part number **22-215-03**).

Single link/dual link DVI

Dual link DVI carries signals at resolutions up to 2560x1600 @ 60 Hz. Single link DVI carries signals at resolutions up to 1920x1200 @ 60 Hz.

Video Resolution (60 Hz)	Single Link Mode		Dual Link Mode	
	UTP	STP/DTP26	UTP	STP/DTP26
1024x768				
720p	200 feet (60 m)	200 feet (60 m)	200 feet (60 m)	200 feet (60 m)
1080i				
1920x1200				
1600x1200	100 feet (30 m)	125 feet (38 m)	100 feet (30 m)	150 feet (45 m)
1080p				
2560x1600	N/A	N/A	100 feet (30 m)	150 feet (45 m)

NOTE: The transmission distance varies greatly depending on signal resolution and on the type of cable, graphic card, and display used in the system.

To operate in dual link mode, all three TP cables are required and both the source and display devices must support dual link DVI signals.

To operate in single link mode, only TP cables 1 and 2 are required. Dual link DVI is backwards compatible with single link DVI.

The DVI/HDMI 201 (single link) receivers can be used with the DVI DL 201 transmitter, in single link mode (using only TP cables 1 and 2).

DDC Switches

When the DVI-D source device boots up, it uses the Display Data Channel (DDC), a two-way communication protocol, to obtain Extended Display Identification Data (EDID) from the display device. This allows the source to output a resolution that matches the capabilities of the display.

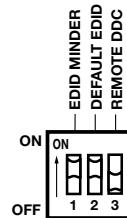
A bank of three switches allows the user to determine how the source device will obtain the EDID. The EDID can be obtained directly from the display device, or from the internal memory within. The three switches are:

EDID Minder — This switch must be on for the EDID Minder function to be enabled. The factory default for this switch is the off position.

Default EDID — When the Default EDID switch is on (factory default; see figure at right), an EDID showing a typical dual link DVI display resolution of 2560x1600 @ 60 Hz is passed to the source device. The EDID Minder switch must also be on for the Default EDID switch to function.

Remote DDC — When this switch is off, the DDC is routed to the local monitor. When the switch is on, the DDC is routed to the remote display device.

See page 13 for more information about configuring these switches to provide the source device with the correct EDID.

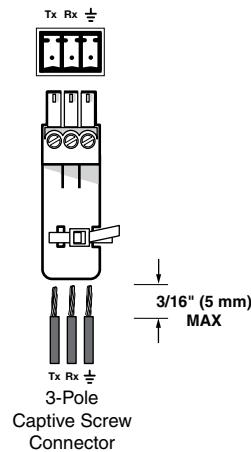


Control Pass-through

The DVI DL 201 Tx/Rx cannot be controlled by RS-232 or IR controls. However, they are able to pass signals from a control device to a remote device that is controlled by those signals.

NOTE: The RS-232 and IR communications are via a passive pass-through only; the transmitter and receiver neither generate nor respond to these signals.

Use the three-pole, 3.5 mm captive screw connector on the transmitter to input RS-232 or IR signals from a control device. Use the corresponding connector on the receiver to pass signals to the output display.



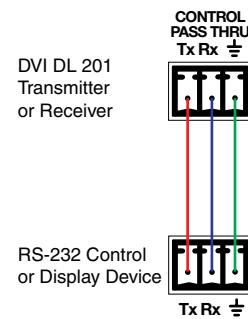
NOTE: The ideal length of exposed wire in the stripping process is 3/16 inch (5 mm). If longer than 3/16 inch, the exposed wires may touch, causing a short circuit. If shorter than 3/16 inch, the wires can be easily pulled out even if tightly fastened.

Do not tin the wires. Tinned wire does not hold its shape and comes loose over time.

RS-232 signals

RS-232 signals are bidirectional — signals pass from the control device and replies return from the remote device. To connect the control device to the transmitter, or the receiver to the remote device, make the following connections, as shown at right:

- Tx to Tx
- Rx to Rx
- \pm (ground) to \pm

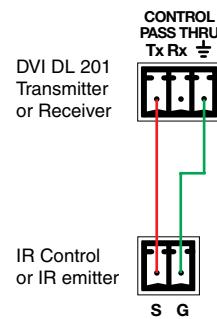


NOTE: For information about controlling display devices with RS-232 commands, please refer to the user guide of that device.

IR signals

IR signals are one-way (from control device to the IR emitter that broadcasts the IR signal remotely). There are no responses and no requirement for a reverse pathway. To connect the control device to the transmitter or the receiver to the IR emitter, make the following connections, as shown at right:

- The Signal (S), from the control device to Tx of the transmitter.
- The ground (G) of the control device is connected to the ground (\pm) of the transmitter.
- The Tx of the receiver to the S of the IR emitter.
- The ground (\pm) of the receiver to the ground (G) of the IR emitter.



Power Input

1. Connect the captive screw connector from the supplied 12 VDC power supply into the power receptacle.

CAUTION: Always use a power supply supplied by or specified by Extron. Use of an unauthorized power supply voids all regulatory compliance certification and may cause damage to the supply and the end product.

Unless otherwise stated, the AC/DC adapters are not suitable for use in air handling spaces or in wall cavities. The power supply is to be located within the same vicinity as the Extron A/V processing equipment in an ordinary location, Pollution Degree 2, secured to the equipment rack within the dedicated closet, podium or desk.

The installation must always be in accordance with the applicable provisions of National Electrical Code ANSI/NFPA 70, article 75 and the Canadian Electrical Code part 1, section 16. The power supply shall not be permanently fixed to building structure or similar structure.

Twisted pair cable 2, pin 5 carries a 12 VDC power signal. This remote powering feature allows a single power supply, connected to the transmitter, to power both the transmitter and receiver.

CAUTION: Power supply voltage polarity is critical. Incorrect voltage polarity can damage the power supply, the transmitter, and/or the receiver. Identify the ground (\pm) lead by the ridges on the side of the cord (see the figure below).

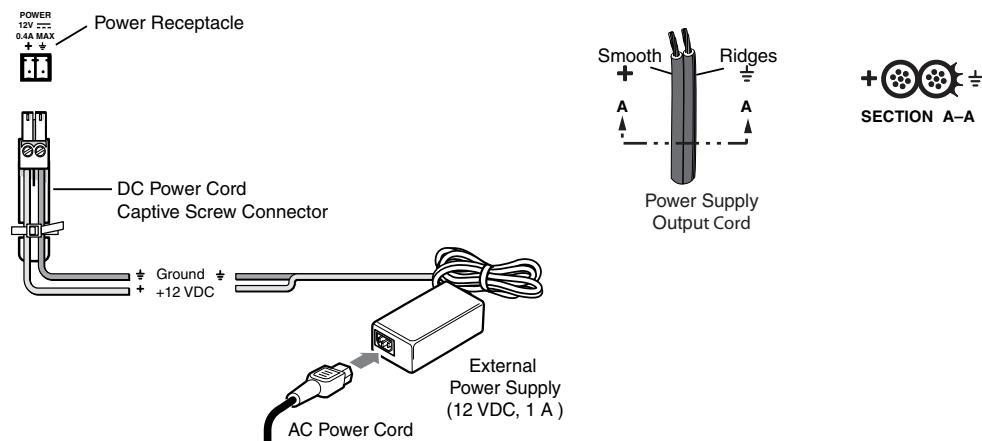


Figure 6. Connecting Power to DVI DL 201 Tx/Rx

NOTE: See the [second note](#) on page 10 for important information about wiring captive screw connectors.

2. Connect the AC power cord of the power supply unit to a 110 or 220 VAC electrical source.
3. When the transmitter or receiver is getting power, either directly from the power supply or indirectly through the remote powering feature (receiver), the front panel LED lights amber.

Configuration and Operation

This section provides information about:

- [Configuration](#)
- [Setup and Operation](#)
- [Troubleshooting](#)

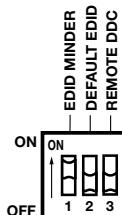
Configuration

Using the EDID Minder to Read and Store EDID from a Display

During boot up, the DVI-D source device uses Display Data Channel (DDC) to obtain Extended Display Identification Data (EDID) from the display device. This allows the output signal to match the resolution and refresh rate of the display device.

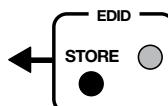
The DVI DL 201 Tx/Rx uses the Extron EDID Minder, which allows the user to store and use EDID from any display device. To use this feature, follow these steps:

1. Disconnect all devices and cables from the transmitter and receiver.
2. Connect the desired display to the Local Monitor output of the transmitter. For best results, the cable for this connection should be 15 feet (4.5 m) or shorter.
3. Apply power to the transmitter and the display device. If necessary, connect the power supply to the transmitter.
4. Set the EDID Minder switch on the transmitter to the on (up) position (see the figure at right).
5. Set the Default EDID switch to the off (down) position (see the figure at right).
6. Set the Remote DDC to the off (down) position to allow DDC routing to go to the local monitor (see the figure at right).



NOTE: The EDID Minder extracts information only from the local monitor, not from the remote display.

7. Press and release the EDID Minder Store button. The LED next to the switch turns from green to amber. This indicates that the transmitter is reading and extracting the EDID from the display connected to the local monitor output.



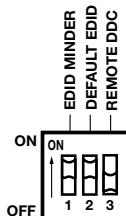
When the information has been successfully extracted and stored in non-volatile memory, the LED returns to green.

8. Turn off the display and disconnect it from the transmitter.
9. Connect the transmitter to the receiver with the three twisted pair cables.
 - Transmitter port 1 connects to receiver port 1.
 - Transmitter port 2 connects to receiver port 2.
 - Transmitter port 3 connects to receiver port 3.
10. Power up the transmitter and the receiver. A single power supply, connected to the transmitter can provide power to both units through the remote power connection.
11. Connect the remote display to the receiver output. A local monitor display can also be connected to the transmitter output at this time.
12. Connect the DVI source to the transmitter input.
13. Check that the transmitter switches are in the positions described in steps **4 to 6**.
14. Power on the DVI source device. The source device reads and uses the EDID information stored in the transmitter memory and boots up with that resolution.
15. Power on the remote (and local) display device(s).

NOTE: All display devices must be capable of handling resolutions equal to or greater than that of the device used to set the EDID.

Using the EDID Minder with the Default EDID

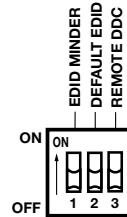
1. Set the EDID Minder switch to the on (up) position and the Default EDID switch to the on (up) position (see the figure at right). The position of the Remote DDC switch is not relevant.
2. Connect the source device to the transmitter input.
3. Connect the display device to the receiver output and, if required, the local monitor to the transmitter output.
4. Connect the transmitter to the receiver with the three twisted pair cables.
 - Transmitter port 1 connects to receiver port 1.
 - Transmitter port 2 connects to receiver port 2.
 - Transmitter port 3 connects to receiver port 3.
5. Power on all devices.
6. The source boots using EDID showing a native resolution of 2560x1600, regardless of the display device.



NOTE: All display devices must be capable of handling resolutions equal to or greater than that of the device used to set the EDID.

Using Pass-through Mode with DDC Routed to a Local Monitor

1. Set the EDID Minder switch to the off (down) position and the Default EDID switch to the off (down) position (see the figure at right). The position of the Remote DDC switch is not relevant.
2. Connect the source device to the transmitter input.
3. Connect the display device to the receiver output and, if required, the local monitor to the transmitter output.
4. Connect the transmitter to the receiver with the three twisted pair cables.
 - Transmitter port 1 connects to receiver port 1.
 - Transmitter port 2 connects to receiver port 2.
 - Transmitter port 3 connects to receiver port 3.
5. Power on the local monitor, the transmitter, and the receiver.
6. Boot up the source device. The source boots with the resolution and refresh rate of the local monitor.



NOTE: Because the local monitor is the source of EDID, it must be powered on before the source device is booted.

7. Power on the display device.

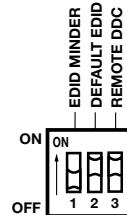
NOTE: The remote display device must be capable of handling a resolution equal to or greater than that of the local monitor.

Using Pass-through Mode with DDC Routed to the Remote Display

NOTE: This is the factory default setting.

NOTE: Although DDC can be routed to the remote display, there may be instances when the signals become corrupted or weak. In those cases, the source device may be unable to boot up correctly.

1. Set the EDID Minder switch to the off (down) position and the Remote DDC switch to the on (up) position (see the figure at right). The position of the Default EDID switch is not relevant.
2. Connect the source device to the transmitter input.
3. Connect the display device to the receiver output and, if required, the local monitor to the transmitter output.
4. Connect the transmitter to the receiver with the three twisted pair cables.
 - Transmitter port 1 connects to receiver port 1.
 - Transmitter port 2 connects to receiver port 2.
 - Transmitter port 3 connects to receiver port 3.
5. Power on the remote display, the transmitter, and the receiver.



6. Boot up the source device. The source boots with the resolution and refresh rate of the remote display.

NOTE: Because the remote display is the source of EDID, it must be powered on before the source device is booted.

7. Power on the local monitor, if required.

NOTE: The remote display device must be capable of handling a resolution equal to or greater than that of the local monitor.

Setup and Operation

1. Determine which source will be used for the EDID information and configure the DDC switches appropriately (see [pages 13 to 16](#)). If necessary, use the EDID Minder to read and store information from a display (see [pages 13 to 14](#)).
2. Prepare twisted pair cables (see ["Terminating shielded cable"](#)).
3. Connect the transmitter to the receiver (see ["Connections"](#))
4. Connect the source device to the transmitter (see ["DVI-D input"](#)). Do not power on the source device at this time.
5. Connect the display device to the receiver (see ["DVI-D output"](#)). If required, connect a local monitor to the transmitter.
6. If required, connect any RS-232 or IR control devices (see ["Control pass-through"](#)).
7. Connect the power supply to the transmitter (see ["Power input"](#)).

CAUTION: Read all the Cautions in the "Power Input" section.

8. Power on the display device.
9. Power on and boot up the source device.

Troubleshooting

If the DVI DL 201 Tx/Rx does not provide a high quality output signal, check the following possibilities before contacting your Extron representative (see the back cover for contact information). Be sure to read all the suggestions as many of the issues have several possible solutions.

No output signal — Check that the front panel LEDs for both the transmitter and receiver are on (lit amber). If they are not, check the power supply connections to the units.

If a single power supply is being used to power both units, it must be connected to the transmitter.

NOTE: Do not try to power both units with a single power supply connected to the receiver as that will not provide adequate power to the transmitter.

There are some circumstances, particularly with longer Unshielded Twisted Pair (UTP) cable runs, where the receiver may not get adequate power. Under these circumstances, it may be necessary to use two separate power supplies, one for the transmitter and one for the receiver.

Insure all three twisted pair cables are firmly seated in the correct receptacles.

No output signal or poor quality signal — Check the integrity of the UTP or STP cables between the transmitter and the receiver.

NOTES: The transmitter and receiver pair works with unshielded twisted pair (UTP) or shielded twisted pair (STP) cables. To ensure FCC Class A and CE compliance, and for optimum performance, STP cables are recommended.

Do not use skew-free cable. Extron strongly recommends DTP26 cable, especially when using high resolutions such as 1920x1200, 1600x1200, or 2560x1600. DTP26 cable is available as non-plenum (part number **22-214-03**) or plenum (part number **22-215-03**).

- Ensure that the twisted pair cables are terminated correctly and to the same standard at both ends (see ["Terminating shielded cable"](#)).
- Ensure that each RJ-45 connector is firmly seated in its receptacle and that each transmitter port is connected to the correct receiver port (see ["Connections"](#)).
- Ensure that the length of the twisted pair cable does not exceed the guidelines for single link or dual link connections (see ["Single link/dual link DVI"](#)).

Image loss or jitter — DVI signals run at very high frequency and are especially susceptible to bad video connections, too many adapters, or cables that are too long. To avoid loss of an image or introduction of image jitter:

- The DVI cable on the input to the transmitter or the output from the receiver should not exceed 10 feet (3 m).
- Use only cable designed for DVI signals.
- Limit or avoid the use of adapters, patch panels, or couplers with the input DVI cables, the output DVI cables, and/or the twisted pair cables. Additional links in the chain reduce signal integrity and overall cable length performance.
- Always turn on the display before the DVI video source in order for the source to retrieve the DDC from the display.

No video signal or incorrect resolution or refresh rate — If the source device is not able to obtain EDID information when it is being powered on, it may not be able to send a video signal or the signal may have the wrong resolution or refresh rate.

- Ensure that the DDC DIP switches are set correctly for the EDID source (see [“Configuration”](#)).
- The source device must be powered on after the display device providing the EDID source has been powered on.

Incorrect color or tint — Ensure that the twisted pair cables are terminated correctly and to the same standard on both ends of the cable (see [“Terminating Shielded Cable”](#)).

Display device shows a flashing black or blue screen, snow, or other distortion — A device that is not High-Bandwidth Digital Content Protection (HDCP) compliant may be receiving HDCP-encrypted signals.

The DVI DL 201 Tx/Rx is compatible with HDCP signals only when the EDID Minder is disabled. HDCP signals can be passed through to only one display (remote or local) and only that display shows the signal correctly.

Signal on local monitor but not on remote display — Check that both output devices (local and remote) can handle resolutions equal to or greater than the EDID source.

Reference Information

This section provides information about:

- **Specifications**
- **Included Parts**
- **Optional Accessories**

Specifications

Video

Maximum data rate	10 Gbps (3.3 Gbps per color)
Maximum pixel clock	330 MHz (165 MHz per link)
Resolution range.....	Up to 2560x1600 @ 60 Hz
Formats	RGB and YCbCr digital video
Standards	DVI 1.0, HDMI 1.2

Video input and loop-through— transmitter

Number/signal type.....	1 dual link DVI-D* input 1 dual link DVI-D* local loop-through
Connectors.....	2 DVI-I female (1 for input, 1 for loop-through)

NOTE: *Dual link DVI is backwards compatible with all single link DVI/HDMI signals.

Interconnection between transmitter and receiver

Connectors.....	(3) RJ-45 per unit for 3 cables connecting the transmitter and receiver
Termination standards.....	TIA/EIA T568A or T568B
Signal transmission distance	
1920x1200 or 1080p @ 60 Hz	
Extron DTP26 cable.....	Up to 150' (45 m)
2560x1600 @ 60 Hz	
CAT 5/5e/6 STP or Extron DTP26	Up to 125' (38 m)
CAT 5/5e/6 UTP cable	100' (30 m)
	Longer distances are possible with lower rates.

NOTE: The transmission distance varies greatly depending on the signal resolution and on the type of cable, graphics card, and display used in the system.

Video output— receiver

Number/signal type.....	1 dual link DVI-D*
Connectors.....	1 DVI-I female

NOTE: *Dual link DVI is backwards compatible with all single link DVI/HDMI signals.

Control/remote — external device (pass-through)

Serial control port input	
Transmitter	RS-232 via (1) 3.5 mm, 3 pole captive screw connector
Receiver.....	1 set of proprietary signals on a female RJ-45 jack
Serial control port output	
Transmitter	1 set of proprietary signals on a female RJ-45 jack
Receiver.....	RS-232 via a 3.5 mm, 3 pole captive screw connector

NOTE: Protocol is mirrored between the transmitter and the receiver.

Serial control pin configurations..... Captive screw connectors: 1 = Tx, 2 = Rx, 3 = GND

General

Recommended cable type.....	CAT 5/5e/6 (shielded or unshielded) or Extron DTP26
External power supply.....	100 VAC to 240 VAC, 50-60 Hz, 6 W max., external; to 12 VDC, 2 A, regulated
Power input requirements.....	12 VDC, 0.4 A for both transmitter and receiver

NOTE: Each transmitter and receiver can be powered locally by an external power supply. The receiver can be powered remotely by a power supply connected to the transmitter on the other end of the CAT 5/5e/6 or Extron DTP26 cable.

Temperature/humidity.....	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Cooling	Convection, no vents
Mounting	
Rack mount.....	Yes, with optional 1U rack shelf
Furniture mount	Yes, with optional through-desk mounting kit
Pole mount.....	Yes, attachable to a projector pole mount using optional mounting kit
Enclosure type	Metal
Enclosure dimensions	
DVI DL 201 TX.....	1.75" H x 8.75" W x 3.0" D (1U high, half rack wide) 4.4 cm H x 22.2 cm W x 7.6 cm D (Depth excludes connectors.)
DVI DL 201 RX.....	1.0" H x 4.3" W x 3.0" D (quarter rack wide) (2.5 cm H x 10.9 cm W x 7.6 cm D) (Depth excludes connectors.)
Product weight	Transmitter: 0.6 lbs (0.3 kg) Receiver: 0.3 lbs (0.1 kg) Transmitter and receiver: 0.9 lbs (0.4 kg)
Shipping weight	2 lbs (1 kg)

Vibration	ISTA 1A in carton (International Safe Transit Association)
Regulatory compliance	
Safety	CE, c-UL, UL
EMI/EMC	CE, C-tick, FCC Class A**, ICES, VCCI
MTBF	30,000 hours
Warranty	3 years parts and labor

NOTES: **FCC testing is conducted with STP (shielded twisted pair) cable.

All nominal levels are at $\pm 10\%$.

Specifications are subject to change without notice.

Included Parts

Description	Part Number
(1 pair) DVI DL 201 Tx/Rx	60-957-01
or (1) DVI DL 201 Tx	60-957-12
or (1) DVI DL 201 Rx	60-957-13
(1) 12 VDC, 2A power supply	
(32) self-adhesive, shielded aluminum tape strips	
(6) RJ-45 connectors	
(8) rubber feet	
(1) Tweeker (screwdriver)	
<i>DVI DL 201 Tx/Rx Setup Guide</i>	

Optional Accessories

Description	Part Number
DTP26 Shielded Digital Twisted Pair Cable non-plenum 1000' (300 m)	22-214-03
DTP26 Shielded Digital Twisted Pair Cable plenum 1000' (300 m)	22-215-02
DTP RJ-45 connectors for Extron DTP26 cable (10/pack)	101-105-01
RSF 123 (3.5 inches deep, 1U rack shelf kit)	60-190-20
RSB 123 (3.5 inches deep, 1U basic rack shelf)	60-604-21
RSU 126 (6 inches deep, 1U rack shelf kit)	60-190-10
RSB 126 (6 inches deep, 1U basic rack shelf)	60-604-11
RSU 129 (9.5 inches deep, 1U rack shelf kit)	60-190-01
RSB 129 (9.5 inches deep, 1U basic rack shelf)	60-604-02
PMK 300 Projector mounting kit	70-374-01
MBD 129 Through-desk mounting kit (for DVI DL 201 Rx)	70-077-02
MBD 123 Through-desk mounting kit (for DVI DL 201 Tx)	70-485-01
MBU 125 Under-desk mounting kit (for DVI DL 201 Rx)	70-077-01
MBU 123 Under-desk mounting kit (for DVI DL 201 Tx)	70-212-01
HDMIF-DVIDM female HDMI to male DVI-D adapter	26-616-01

Mounting

This section outlines the various mounting options available for the DVI DL 201 Tx/Rx:

[Tabletop Placement](#)

[Rack Mounting](#)

[Under-desk Mounting](#)

[Through-desk Mounting](#)

[Projector Mounting](#)

Tabletop Placement

Attach the four provided rubber feet to the bottom of the unit and place it in any convenient location.

Rack Mounting

UL Guidelines for Rack Mounting

The following Underwriters Laboratories (UL) guidelines are relevant to the safe installation of these products in a rack:

- 1. Elevated operating ambient temperature** — If the unit is installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, install the equipment in an environment compatible with the maximum ambient temperature (Tma: +122 °F, +50 °C) specified by Extron.
- 2. Reduced air flow** — Install the equipment in the rack so that the equipment gets adequate air flow for safe operation.
- 3. Mechanical loading** — Mount the equipment in the rack so that uneven mechanical loading does not create a hazardous condition.
- 4. Circuit overloading** — Connect the equipment to the supply circuit and consider the effect that circuit overloading might have on overcurrent protection and supply wiring. Appropriate consideration of the equipment nameplate ratings should be used when addressing this concern.
- 5. Reliable earthing (grounding)** — Maintain reliable grounding of rack-mounted equipment. Pay particular attention to supply connections other than direct connections to the branch circuit (such as the use of power strips).

Rack Mounting Procedure

The unit can be mounted on any of these optional Extron rack systems:

- RSF 123: 3.5 inch deep, 1U rack shelf kit (part number **60-190-20**)
- RSB 123: 3.5 inch deep, 1U basic rack shelf (part number **60-604-21**)
- RSU 126: 6 inch deep, 1U rack shelf kit (part number **60-190-10**)
- RSB 126: 6 inch deep, 1U basic rack shelf (part number **60-604-11**)
- RSU 129: 9.5 inch deep, 1U rack shelf kit (part number **60-190-01**)
- RSB 129: 9.5 inch deep, 1U basic rack shelf (part number **60-604-02**)

To mount the scaler on a rack shelf, follow the instructions provided with the shelf accessories.

Under-desk Mounting

Mount the unit under a desk or podium, using the optional Extron MBU 125 under-desk mounting kit (part number **70-077-01**) for the DVI DL 201 Rx or the MBU 123 kit (part number **70-212-01**) for the DVI DL 201 Tx. Follow the instructions provided with the appropriate kit.

Through-desk Mounting

Mount the unit through a desk or podium using the optional Extron MBD 129 through-desk mounting kit (part number **70-077-02**) for the DVI DL 201 Rx or the MBD 123 kit (part number **70-485-01**) for the DVI DL 201 Tx. Follow the instructions provided with the appropriate kit.

Projector Mounting

Mount the DVI DL 201 Rx above a projector using the optional Extron PMK 300 Projector mounting kit (part number **70-374-01**) by following the instructions provided with the kit.

Extron® Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase; touchscreen display and overlay components are covered for 1 year. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

USA, Canada, South America, and Central America:

Extron Electronics
1001 East Ball Road
Anaheim, CA 92805
U.S.A.

Japan:

Extron Electronics, Japan
Kyodo Building, 16 Ichibancho
Chiyoda-ku, Tokyo 102-0082
Japan

Europe, Africa, and the Middle East:

Extron Europe
Hanzeboulevard 10
3825 PH Amersfoort
The Netherlands

China:

Extron China
686 Ronghua Road
Songjiang District
Shanghai 201611
China

Asia:

Extron Asia
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Middle East:

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This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions, or modifications made to the product that were not authorized by Extron.

NOTE: If a product is defective, please call Extron and ask for an Application Engineer to receive an RA (Return Authorization) number. This will begin the repair process.

USA: (714) 491-1500
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Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.

Installation Checklist

- Determine which source will be used for the EDID information and configure the DDC switches appropriately (see [pages 13 to 16](#)). If necessary, use the EDID Minder to read and store information from a display (see [pages 13 to 14](#)).
- Prepare twisted pair cables (see ["Terminating shielded cable"](#)).
- Connect the transmitter to the receiver (see ["Connections"](#))
- Connect the source device to the transmitter (see ["DVI-D input"](#)). Do not power on the source device at this time.
- Connect the display device to the receiver (see ["DVI-D output"](#)). If required, connect a local monitor to the transmitter.
- If required, connect any RS-232 or IR control devices (see ["Control pass-through"](#)).
- Connect the power supply to the transmitter (see ["Power input"](#)).

CAUTION: Read all the Cautions in the ["Power Input"](#) section.

- Power on the display device.
- Power on and boot up the source device.

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